

Water Treatment Plant/Systems Maintenance

No.	Description	Frequency	Action
1	Extent of Contract	N/A	This specification refers to the periodic maintenance of water treatment plant and equipment. This specification does not include for the regular operational functions or monitoring. The Contractor shall note that this specification represents a minimum standard. It is generic and not specific to a particular manufacturer or item of equipment. It is recognised that water treatment plant and equipment is of a specialist nature, designed for a particular application and installation. In all instances, the manufacturer's requirements and recommendations, shall be complied with and shall take preference where they exceed the requirements of this specification.
2	Maintenance Instructions	N/A	Examine the log book. Ensure that it contains commissioning data, information and instructions.
3	Log Book	Annually	Report, as a defect requiring attention, the absence of any such item within the log book
4	Notices	Annually	Ensure notices are present, in good condition and clearly displayed. Provide new notices as necessary.
5	Operating Instructions	Annually	Ensure that the operator has and understands the manufacturer's operating instructions
6	Pipework - General	6 monthly	Examine: Corrosion Joints for leaks
7	Flexible Pipework	6 monthly	Examine: Brittle materials and fraying braid. Connections for leaks
8	Expansion joints	6 monthly	Examine: Expansion joints; clean and repack as necessary. Fixings at anchor points. Alignment.
9	Hangers and supports	6 monthly	Examine hangers, supports and fixings. Tighten and adjust as necessary.
10	Insulation	6 monthly	Examine thermal insulation
11	Valves	6 monthly	Test: Valves for free travel. Isolating valves. Motorised valves and solenoids.
12	Blow down valves	6 monthly	Examine for leakage. Test operation of blow down valves.
13	Pumps - General	6 monthly	Examine: Anti-vibration mountings and fixings. Adjust as necessary. Associated valves and pipework Leakage.
14	Circulating pumps	6 monthly	Examine : Pulleys and keys. Drives for alignment; adjust as necessary
15	Dosing pumps	6 monthly	Examine dosing and metering pumps. Check calibration and performance against design parameters and manufacturer's data. Clean and examine.
16	Pressure gauges, thermometers, etc	6 monthly	Test against known standard, re- calibrate as necessary.
17	Manometers	6 monthly	Examine: General condition. Fluid in manometers. Replace as necessary. Test against known standard, re-calibrate as necessary.
TANKS, BUNDS AND CHEMICAL STORES			
18	General	6 monthly	Examine: Leakage. General security arrangements Clean
19	Tanks	6 monthly	Examine: General condition For corrosion or deterioration. Protective coatings and linings. Elevators, mixing devices and agitators
20	Bunds	6 monthly	Examine general condition of bunds. Consider size and suitability for application. Clean bunds of all foreign material.
21	Stores	6 monthly	Examine: Security. Access and suitability. Ventilation.
FILTERS			
22	General	6 monthly	Examine internally and externally: General mechanical condition Corrosion and deterioration of protective linings and coatings
23	Strainers	6 monthly	Clean and examine strainers. Replace gauze as necessary.
24	Sand Filters	6 monthly	Back wash filters. Check filter bed. Measure and record pressure across filter.
25	Activated carbon filters	6 monthly	Measure and record pressure across filter. Replace carbon filters as necessary.
26	Cartridge filters	6 monthly	Measure and record pressure across filter. Replace cartridge filters as necessary.
27	Reverse osmosis plant	6 monthly	Measure and record pressure across plant.

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No.	Description	Frequency	Action
			Replace membranes as necessary. Clean interior and exterior of control panels. Ensure identification labels are correct, legible and in position
28	Control Panels	6 monthly	Examine: And test indicator lamps, renew as necessary Condition of panel wiring. Wiring terminal connections are sound Earthing arrangements and test continuity Fuse holders; ensure that correct fuses are fitted. Relays, clean and adjust as necessary. Contactors and overload relays, clean and adjust as necessary. Ensure overloads are set for load conditions. Isolator and interlock. Protective guards. Circuit boards. Ensure they are securely located Circuit boards for evidence of over heating or component failure.
29	Sensors and detectors	6 monthly	Clean and test selector switches. Examine: Condition. Fixings. Pockets, enclosures, etc. Terminal connections. Condition of wiring. Test output and compare tmanufacturer's parameters. Recalibrate as necessary
ELECTRICAL INSTALLATION			
30	Electrical Installation	6 monthly	Examine: Local isolators and connections tthe fixed wiring installation. Flexible cables for wear, fraying braid and brittle insulation. Connections. Earthing arrangements and test continuity
31	Electrical installation - fixed wiring	Annually	Test insulation resistance. Carry out a periodic inspection with associated circuit tests in accordance with the requirements of BS7671: Requirements for Electrical Installations.
WATER SOFTENING EQUIPMENT			
32	Cation exchange systems	6 monthly	Clean and examine equipment. Test for leakage. Undertake regeneration cycle, measuring key parameters pre and post regeneration cycle. Renew resins and regenerative materials as necessary. Measure hardness of water at point of delivery and after softener. Compare tdesign parameters and commissioning data.
DISINFECTION EQUIPMENT			
33	Chlorination equipment	6 monthly	Examine: Sodium hypochlorite or calcium hypochlorite tanks, Mixing systems, Pipe injectors, etc for leaks, corrosion and/or deterioration. Test concentration levels. Adjust as necessary. Clean and examine equipment. Test for leakage.
34	Chlorine dioxide systems	6 monthly	Examine generators and injectors. Test concentration levels. Adjust as necessary. Clean and examine equipment Test for leakage. Examine electrodes. Replace as necessary
35	Ionisation systems	6 monthly	Test concentration levels. Adjust as necessary. Clean and examine equipment. Test for leakage. Examine generators and injectors
36	Ozone systems	6 monthly	Test concentration levels. Adjust as necessary.
37	UV systems	6 monthly	Clean and examine equipment. Test operation of UV lamps. Replace as necessary.
GAS BOTTLES AND INJECTION SYSTEMS			
38	Gas Bottles	6 monthly	Examine: Gas bottle carriers. Framework and support chains. Gauges.
39	Regulators and Reduction Valves	6 monthly	Ensure gas bottles are securely fixed. Check pressure regulators and sensors. Examine gauges. Examine manifold tailpipes for cracks, chaffing, damage tthreads and test for leaks. Test safety valves. Test joints, connections, glands and seals for leaks. Pressure test manifolds.
40	Pipework and injectors	6 monthly	Examine: Pipework, hangers and supports. For corrosion. Pressure test pipework. Clean injectors.
Legionella L8 Risk Assessment and Report Document Requirements			
41	Extent of Contract	N/A	Carry out a full survey and report for each building

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No.	Description	Frequency	Action
			Establish the topographical position of all tanks, pipework, pumps, valves, gauges, and draw off points of all water services contained within
42	Reports and Asset Register	N/A	Prepare a full report on the condition of all tanks, pipework, pumps, valves, gauges, and draw off points of all water services together with a schedule or remedial works to be carried out
			Full details of tanks are to be included together with all pipe sizes and materials
43	Asset Register	N/A	Prepare a full numbered asset register of all tanks, pipework, pumps, valves, gauges, and draw off points of all water services
			Prepare Schematic drawings
			Available on a CD for the client
44	Schematic Drawings	N/A	In a format suitable to the client's requirements (AutoCAD/PDF)
			Identify the sentinel hot and cold water outlet taps as recommended in the HSE code of practice document L8
45	Identification of sentinel outlet taps	N/A	Legionnaire's Disease: The control of legionella bacteria in water systems
46	Service Labels	N/A	Service labels shall be self adhesive and fitted to the exterior of each tank, boilers, water heaters, calorifiers, and pumps, indicating a unique reference number for each item
47	Risk Assessment	N/A	Prepare a full risk assessment with all recommendations with regards to risk management, management responsibilities, training recommendations, and competence levels of all personnel where associated with the management of Water Hygiene
Legionella L8 Risk Water Hygiene Monitoring Requirements			
48	Extent of Contract	N/A	Carry out the following actions on the equipment as included in the asset register
			Ensure that all readings are correctly recorded in the asset register
49	Little used outlets	Weekly	Flush through and purge to drain without release of aerosols
50	Sentinel hot taps	Monthly	Check the temperature to ensure below
			Check the temperature to ensure reaching 50 degrees C after running the water for up to 60 seconds
51	Sentinel cold taps	Monthly	20 degrees C after running the water for up to 120 seconds
52	Calorifiers	Monthly	Check Calorifier stored water temperature
			Ensure this is a minimum of 60 degrees
53	Showers	3 monthly	Check temperature of secondary flow and return
			Dismantle, clean and de-scale shower heads and hoses
54	Water Storage Tanks	6 monthly	Check the water storage tanks temperatures at ball valve and remote from ball valve to ensure below 20 degrees C
55	Calorifiers	Annually	Take samples from hot water calorifiers and note condition of drain water
			Check the internal surfaces for scale and sludge and clean if required
56	Water Storage Tanks	Annually	Visually inspect for sediment – clean and disinfect if required
			Check overflow and vent rodent screens
57	Hot taps	Annually	Check the temperature of a representative number to ensure reaching 50 degrees C after running the tap for up to 60 seconds
58	Cold taps	Annually	Check the temperature of a representative number to ensure below 20 degrees C after running the tap for up to 120 seconds
Inspection, Testing and Maintenance of Thermostatic Mixing Valves			
60	System Information	Each occasion maintenance occurs	The Contractor shall examine records pertaining to each TMV.
			All TMVs should be identified by a unique asset number.
			In particular the Contractor shall ensure the presence of the following information:
			As-fitted drawings.
			Manufacturer's installation and maintenance manual.
			Commissioning and testing records.
			Maintenance records.
61	Water temperature	6 monthly	Measure temperature of water flow at normal flow rate and after allowing stabilisation.
			Use a digital thermometer of known accuracy, with a minimum refresh rate of 4 times per second.
			Temperature range should be as required in HTM 04
62	Fail safe action	6 monthly	Isolate cold water supply.
			Ensure all hot water ceases to flow in time specified by manufacturer for valve type.
63	Flow rate	6 monthly	Measure flow rate.
			Compare flow to commissioning data and previous maintenance records.
			Undertake maintenance as appropriate.
64	TMV - general	Annually	Examine for leaks. Examine for corrosion.
			Examine connections, hoses and outlets.
			Examine fixings.
			Descale in accordance with manufacturer's instructions.
			Sterilise shower heads as required by legionella risk management plan.
65	Pipework	Annually	Examine for leaks.
			Examine hangers and supports; adjust as necessary
			Examine for corrosion. Examine thermal insulation. Record hot and cold water temperatures.
66	Isolation Valves	6 monthly	Examine for leaks.
			Test valves for free travel. Repack if necessary. Examine for corrosion.
67	Strainers	6 monthly	Examine general mechanical condition.
			Clean strainers and filters.
68	Repairs	As required	If repairs are necessary, all works shall be carried out in strict compliance with manufacturer's recommendations and requirements.
			Upon completion of works the TMV shall be recommissioned in accordance with the manufacturer's instructions.
			Record commissioning data.